

Remarks

On entry of this response, claims 1 and 13 are amended to incorporate the features recited in claims 2 and 14, respectively. Claims 2 and 14 are canceled. Claims 3, 6, 8, 10-12, 15, 18, 20, and 22-24 are amended to change dependencies. No new matter is added.

Claims 25-36 are withdrawn from further consideration. Now pending in the application are claims 1, 3-13, and 15-24, of which claims 1 and 13 are independent. Applicant respectfully submits that the pending claims define over the cited reference.

I. Patentable Subject Matter

Claims 9 and 21 are indicated to recite patentable subject matter and would be allowable if rewritten in independent form. See Office Action, page 4.

II. Claim Rejections under 35 U.S.C. §112, Second Paragraph

Claims 11 and 23 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. See Office Action, page 2.

In the Office Action, the Examiner notes that the term “PID” is ambiguous. Applicant amends claims 11 to and 23 to spell out the term “PID.” Applicant respectfully submits that those of ordinary skill in the control art will appreciate that a “PID” control algorithm means a “proportional-integral-derivative” control algorithm.

For at least the reasons set forth above, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §112, second paragraph rejection of claims 11 and 23.

III. Rejection of Claims 1-8, 10, 11, 13-20, 22 and 23 under 35 U.S.C. §102(e)

In the Office Action, claims 1-8, 10, 11, 13-20, 22 and 23 stand rejected under 35 U.S.C. §102(e) as being anticipate by US 2004/0064195 (hereinafter “Herr”). See Office Action, page 3. Applicant respectfully traverses the rejection in view of the amended claims.

A. Claim 1

Applicant respectfully submits that the Herr reference fails to disclose that “said actuator has an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” as recited in amended claim 1.

The Herr reference discloses an artificial leg with variable mechanical impedance. The artificial leg includes a controllable-spring-rate spring element in which the spring rate is varied under no-load conditions during a walking gate cycle to minimize power consumption. See Herr, abstract.

In the Office Action, the Examiner refers to Figure 8 of Herr and notes that “[t]he device further comprises an actuator f, j, m connected between said upper member and said lower member, for accumulating energy generated by a weight of a user’s body acting on the artificial leg, and operating by releasing the accumulated energy to actuate said lower member into joint motion (see at least paragraph 0022).” See Office Action, page 3.

The Examiner appears to deem that the posterior spring (f), the anterior clutch (j), or the element (m) described in Figure 8 of the Herr reference corresponds to the actuator recited in the present invention. However, the Herr reference does not disclose the structure of the actuator, as recited in amended claim 1.

In comparison, claim 1 recites that the actuator has an upper cylinder, a lower cylinder, a connecting pipe communicating with the upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of the actuator. The actuator recited in claim 1 also includes a switching valve mounted on the connecting pipe for opening and closing the oil passage. The posterior spring (f), the anterior clutch (j), or the element (m) described in Figure 8 of the Herr reference does not have an upper cylinder, a lower cylinder, a connecting pipe communicating with the upper and lower cylinders, and a switching valve mounted on the connecting pipe, as recited in amended claim 1. The Herr reference does not disclose the actuator recited in amended claim 1.

For at least the reasons set forth above, Applicant respectfully submits that the Herr reference fails to disclose all of the elements of claim 1. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §102(e) rejection of claim 1.

In addition to the above distinction, Applicant also submits that the Herr reference fails to disclose that “said control means opens and closes said switching valve to thereby control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in amended claim 1.

As discussed above, the Herr reference does not disclose a switching valve mounted on the connecting pipe for opening and closing the oil passage, as recited in amended claim 1. Accordingly, the Herr reference does not disclose control means that opens and closes the switching valve to thereby control the actuator in respect of at least one of an operational speed and an operational timing, as recited in amended claim 1.

For at least the reasons set forth above, Applicant respectfully submits that the Herr reference fails to disclose all of the features of claim 1. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §102(e) rejection of claim 1.

B. Claims 2-8, 10 and 11

Claim 2 is canceled. Therefore, the rejection of claim 2 is moot. Applicant respectfully requests that the Examiner withdraw the above 35 U.S.C. §102(e) rejection of claim 2.

Claims 3-8, 10 and 11 depend from claim 1 and, as such, incorporate the subject matter of claim 1. For at least the reasons set forth above with respect to claim 1, Applicant respectfully submits that the Herr reference fails to disclose all of the limitations of claims 3-8, 10 and 11. Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §102(e) rejection of claims 3-8, 10 and 11.

C. Claim 13

Applicant respectfully submits that the Herr reference fails to disclose that “said actuator includes an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” as recited in amended claim 13. As discussed above, the Herr reference does not disclose the actuator recited in amended claim 13.

In addition to the above distinction, Applicant also submits that the Herr reference fails to disclose “opening and closing said switching valve to control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in amended claim 13. As discussed above, the Herr reference does not disclose the above feature recited in amended claim 13.

For at least the reasons set forth above, Applicant respectfully submits that the Herr reference fails to disclose all of the features of claim 13. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §102(e) rejection of claim 13.

D. Claims 14-20, 22 and 23

Claim 14 is canceled. Therefore, the rejection of claim 14 is moot. Applicant respectfully requests that the Examiner withdraw the above 35 U.S.C. §102(e) rejection of claim 14.

Claims 15-20, 22 and 23 depend from claim 13 and, as such, incorporate the subject matter of claim 13. For at least the reasons set forth above with respect to claim 13, Applicant respectfully submits that the Herr reference fails to disclose all of the limitations of claims 15-20, 22 and 23. Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §102(e) rejection of claims 15-20, 22 and 23.

IV. Rejection of Claims 12 and 24 under 35 U.S.C. §103(a)

In the Office Action, claims 12 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the Herr reference in view of GB 2244006 A (hereinafter “Woolnough”). See

Office Action, page 4. Applicant respectfully traverses the rejection in view of the amended claims.

A. Claim 12

Claim 12 depends from claim 1 and, as such, incorporates the subject matter of claim 1. Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest that “said actuator has an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” and that “said control means opens and closes said switching valve to thereby control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in claim 12.

The Herr reference does not teach or suggest the above features.

In the Office Action, the Examiner cites Woolnough to provide teachings for the walking state-detecting means recited in claim 12. See Office Action, page 4. Woolnough teaches an artificial limb for an above knee amputee. Woolnough teaches a load sensor associated with the limb and sensing forces applied to the limb. See Woolnough, page 6, lines 1-13.

The Woolnough reference, however, does not teach or suggest the actuator recited in claim 12. Although the Woolnough reference is combined with the Herr reference, the combination does not teach or suggest that “said actuator has an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” and that “said control means opens and closes said switching valve to thereby control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in claim 12.

For at least the reasons set forth above, Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest all of the

limitations of claim 12. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claim 12.

In addition to above distinction, Applicant also submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest “walking state-detecting means for detecting whether or not the artificial leg is in a walking state,” as recited in claim 12.

In the Office Action, the Examiner recognizes that Herr does not teach or suggest the walking state-detecting means recited in claim 12. The Examiner, however, notes that the Woolnough reference compensates for the deficiencies of the Herr reference. See Office Action, page 4. In particular, the Examiner notes that “[r]eferring to paragraph 0080, Woolnough teaches a similar prosthetic device which is configured to power down into a sleep mode.” See Office Action, page 4. The Woolnough reference, however, does not include paragraph 0080 and does not teach a sleep mode. The Woolnough reference does not teach or suggest the walking state-detecting means recited in claim 12.

For at least the reasons set forth above, Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest all of the limitations of claim 12. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claim 12.

B. Claim 24

Claim 24 depends from claim 13 and, as such, incorporates the subject matter of claim 13. Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest that “said actuator includes an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” and “opening and closing said switching valve to control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in claim 24.

The Herr reference does not teach or suggest the above features.

In the Office Action, the Examiner cites Woolnough to provide teachings for the walking state-detecting step recited in claim 24. See Office Action, page 4. The Woolnough reference, however, does not teach or suggest that “said actuator includes an upper cylinder, a lower cylinder, a connecting pipe communicating with said upper and lower cylinders to form an oil passage filled with hydraulic fluid for operation of said actuator, and a switching valve mounted on said connecting pipe for opening and closing said oil passage,” and “opening and closing said switching valve to control said actuator in respect of at least one of an operational speed and an operational timing,” as recited in claim 24.

For at least the reasons set forth above, Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest all of the limitations of claim 24. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claim 24.

In addition to above distinction, Applicant also submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest “a walking state-detecting step of detecting whether or not the artificial leg is in a walking state,” as recited in claim 24.

In the Office Action, the Examiner refers to the Woolnough reference, paragraph 0080 and notes that “Woolnough teaches a similar prosthetic device which is configured to power down into a sleep mode.” See Office Action, page 4. The Woolnough reference, however, does not include paragraph 0080 and does not teach a sleep mode. The Woolnough reference does not teach or suggest a walking state-detecting step recited in claim 24.

For at least the reasons set forth above, Applicant respectfully submits that the Herr and Woolnough references, alone or in any reasonable combination, fail to teach or suggest all of the limitations of claim 24. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the above 35 U.S.C. §103(a) rejection of claim 24.

VI. Conclusion

In light of the above amendments and arguments, Applicant respectfully submits that all of the pending claims are in condition for allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. TIW-017US. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

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